LOW COST TRAINING AIDS AND DEVICES

Chairman: Jim Lawver, Scenic Airlines
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CAPT. LAWVER: You all know Al Lee from NASA. I'd like to introduce David Schober from Command Airways. We brought him down for moral support. He's one of the users like myself. We had a good active discussion. Some was productive, some was nonproductive. Participation from everybody was, I felt, very encouraging. The feeling that something needs to be done is certainly there. It was discouraging because of the fact that there isn't that much out there to work with. If you're a light twin operator like myself, (we fly 402's, 404's, as I mentioned the other day, plus the Twin Otter) there's quite a bit to look at. I just might run through a quick list and kind of pop your eyes a little bit on the prices. The ATC-810, which I mentioned the other day, satisfies training needs for people like myself, 402, 404 drivers and Navaho Chieftan users and can be adapted for any light twin operator generally speaking. We do get credit -- for a VOR approach. We do not have a requirement for NDB approaches.

The AST, Aviation Simulation Technology, (we have a rep here, Dominic Marro,) offers a generic, light twin training device. That's somewhere in the fifty to eighty thousand dollar category. Our ATC-810 is somewhere in the $40,000 category. Flightmatic Incorporated out of Teterboro, N.J. offers a light twin engine model for about $40,000. They also have what they call an F-209 which simulates the Cessna 421. The 209 offers turbo charged engine instrumentation and cabin pressurization controls and a wide variety of failure modes for virtually any type of emergency situation, plus visual display, $80,000. Frasca International, has a piston light twin trainer, $65,000. They also have a turbo prop fixed wing trainer that starts at $275,000. The price gets increasingly frightening here as the complexity increases. Singer Link, we also have Dave Baumgart with us on our panel. As many of you know that company built the lunar landing simulators, and $6 million 747's giant simulators. They also produce training devices. They have a GAT-2 twin engine mode. It sells for approximately $500,000. There's an outfit in Cupertino, California called IFR Flight Synthetics, and they, as I understand, buy old GAT trainers and refurbish them and sell them. They offer a full motion three-axis twin engine machine available with dual controls, priced at $67,000.

So that will give you a little idea of what's out there from that standpoint. The problem is -- I guess it's

obvious -- that there's a large gap from there on up to the fancy high-priced simulators that we discussed earlier. So that was, of course, a concern, since many of the regional airlines fly the more sophisticated airplanes.

In addition to some discussion on that, we talked about other aids and devices, and some of them have been mentioned already, such as audio-visual slides that can be produced relatively cheaply, or random access video disk type -- Frank or somebody mentioned that -- programmed instruction and video cameras. Somebody brought up that you probably could use that for preflight walk-arounds, especially when aircraft aren't readily available except very late at night. Mockups of course are a good idea. You can gain a lot through scan development, normal emergency procedures, identifying and locating switches, this type of thing, and there are some mockups that individual regional airlines have made on their own. A point was brought up, and I think it was a good one, that training aids like that, mockups, have got to be realistic enough to motivate the pilot or the crew to get something out of it. There's a real problem there with boredom, and if you don't make it realistic enough, then the pilot is probably not going to get too much out of it. And, of course, a good instructor is valuable there if you can afford one.

A recommendation: we need a library or a source fact sheet list of just what audio-visual techniques and materials are available. I'd like to be able to pick up a piece of paper, a fact sheet and say okay, these are available if I'm flying this type of airplane, or what else is out there that other people have come across. And I think maybe some additional research along those lines would be helpful. And I hate to keep suggesting RAA, but I'll say RAA and NASA because these guys have been so good to us. They've really been a big help.

Interactive training systems were discussed, computer-assisted instruction, photo mockups with CRT's, a little more involved touch panels. Highly flexible-type systems reduce instructor time, so you could probably almost afford to buy it, or at least to invest in it.

A recommendation here, is a pooling of resources, which is an excellent idea. We can't afford to go out and buy and to invest in many of these devices, but through joint use, through RAA and possibly NASA, maybe we could pool our efforts and come up with some aids and devices that we could all use. It's going to be difficult obviously with the variety of airplanes that are out there. I think maybe we're fortunate in that we are still basically flying a light twin airplane, and we're satisfied with what we have in the ATC-810.

We discussed tape presentations similar to those developed by Mike Yocum at Pennsylvania Air and Frank Foster of Ransome. We'd like to see just how that program went, and we'd like to see it sometime, Mike, if that's possible at a later date. Maybe through RAA we could have something like that made available.

We talked about Instructional Systems Development (ISD), and about the need for guidelines for this type of device. I have a little note down here: fidelity needed, and trainers require skill and task analysis. Maybe Al would like to pursue that a little bit more.

Resource management: we got a little too tied up on nuts and bolts, and then we decided we over killed that one, and returned to a more general discussion of resource management. Again it was apparent that many of the group just didn't have any idea what was available even from the education awareness program. So, again, I think it would be helpful if we had a list, something you could take and say okay, these things are available. I know in my presentation I mentioned a library of sources, Mike Yocum mentioned a couple things I hadn't even found, and Frank Foster the same way, and we were all on the same resource management committee. I think if we can get, again, a sort of fact sheet of all these things, then, the individual airlines could look and say yes, that looks like something I could use and maybe have a good starting point from there.

Information transfer: we talked about that among operators concerning training problems and solutions. It's difficult when you get together in groups like this, because when you leave you go back to the real world and you've got all this paper work that's been growing for the last three days, and it's hard, then, to get yourself -- well, you get yourself involved with the day-to-day activities, forget all the good stuff we talked about here. I think we need some kind of continuing effort along this line. I don't know if a newsletter or other media would be possible, but at least more get-togethers, either in a seminar-type format or even a working group. I thought that this workshop was certainly helpful.

I want to thank Lee for his help and all the others for their help in our working group. One other comment that Frank made that we talked about, too, is that we have to identify what we need. We talked to the folks there from the two manufacturers of training devices, and they said, tell us what you need and then maybe we can go from there. Just one last observation, this is not a war story, but the old business of tell me what you need and we'll try to build it reminds me of when I was in the Air Force flying jet fighters. Many times when there was a new airplane

developed and built, the first time the poor operator/user got to see it was when he walked out the operations squadron building and some guy from Air Force Systems Command up and said there are your 24 new tactical fighters. And so you go out and get in it and all the weapons switches are under the seat, and the gun sight is pointed in the wrong direction — not quite that bad. However, in the early days of the Air Force — and this hasn't been too long ago — the Systems Command and the manufacturer got together to develop the system, and then gave it to the user without any contact with the user at all, and that turned into several disasters, as you probably know. But finally through Tactical Air Command and some of the other operational users we did actually get into the early development of a new system. We said, okay, we'd like to have this or that, and they actually listened to us, and we became involved in the initial development with the manufacturer and with the Systems Command. The Systems Command did their routine, the systems development test and evaluation, which I'm sure some of you are familiar with; then we did our operational testing and evaluation, and not until that time when it was fully tested, fully operational, did we accept it on the line and put it to operational use on the gunnery range or such places as Southeast Asia. This is a much better approach than suddenly having an airplane sitting out there on the ramp and trying to figure out, well, what are we going to do with that one.

So I think the effort here is going along those lines. We're actually talking to each other. We've got to tell them what our objectives are. It's difficult for them to build something out of it.

DR. LAUBER: Thank you, Jim.

Are there questions or points of discussion with regard to the things we've just heard from Working Group III?

MR. BECHER: Ken Becher, Midwest Airlines. I can't agree with you more on need in all of these areas for some kind of clearing house where we can go to get information on what's available. So often we don't have the time to do it on our own. An example is we've been approved for 700 RVR takeoffs. Now, we've come up with a problem of how do we give pilots a realistic idea of what is a 700 RVR takeoff?

We found an article in an Aviation Convention News from July on a device that's a pair of goggles, and it's got a little black box, and the operator of the black box can control RVR — I don't know how, but he moves this little lever and it adjust what the pilot can see. But we have no source of information to go to. It was just luck that we found this. We don't know its effectiveness. We're looking

into it, but a clearing house of some kind of information would definitely be useful, and that's probably as much of an educational process of people who are manufacturing items as it is what we can do.

DR LAUBER: Do you want to comment on that?

CAPT. LAWVER: Well, I haven't heard of that particular device, but your point is certainly well taken.

MR. COLLIE: John, it's some company in the Carolinas, I've been in contact with them a couple of times, and they were supposed to send Air Wisconsin and Ransome a prototype for testing. I still have their phone number. I'll check with them and see where the program is at.

DR. LAUBER: Dick, I thought you might want to respond to the generic issue raised by the comment, and that is this whole function of a clearing house and the importance of that. I couldn't agree more that that kind of function is important to an industry as diverse as your own. To some extent, NASA can function as a clearing house. That's what we're doing with this kind of meeting. But, clearly, NASA does not get involved generally in long-term operational programs of that kind, and this may be a role that your trade associations or organizations like Flight Safety Foundation could play, and I suspect we'll hear more comments on the fact when we hear from the next working group.

Dick Norman in the back has a question and/or comment.

CAPT. NORMAN: Gentlemen, as I sit in and observe the proceedings in progress right now and on the membership of one of the committees here in Group I with Mike, it's very evident here of RAA members, the presentation that Dick Collie gave and what he's trying to present here in the way of simulation -- I'm an advocate of advanced simulation. I worked with Dick while he was in office at FAA, Charlie Huettner and Ken Hunt and the rest of the people to expand this for the major airlines. The cost factors are so great in that area, it takes the major carriers to afford it. Your RAA members are unable to do this. We recognize this. The economic impact is too much. So I certainly advocate what Dick is offering here, that the RAA can work together as far as getting something for the group as a whole. I want to state here, too, that as chairman of the Pilot Training committee I'd be glad to, and our committee would be glad to assist them in what we can in information and considerations as far as simulation is concerned, and in training devices. It's a need, you people need this, you're in the air space with everyone, and the training is so important and so is the safety factor. I want to make that statement to you and

make that offer to you, too.

DR. LAUBER: Thank you, Dick. In having personally worked closely for the past several years with the ALPA Pilot Training Committee, I know that Dick and his people are indeed capable of really doing some good work and have done so in the past. I think it's an interesting offer.

Do we have other questions or comments for this group? Yes, we have one back here.

MR. DEREN: James Deren from Air Kentucky. Small commuters usually, you know, they can't afford either $80,000 or $40,000 for a training device, but we at Air Kentucky happen to use both kinds. We use the 810 and also the AST 300. How we do this is one FBO has an 810 that we rent, forty bucks an hour, also there's a company in Nashville where all the guy does is run a simulator company utilizing the AST 300. And what it costs us to keep our pilots -- do recurrent training with the devices is a lot cheaper than we could even make payments on having one of the devices. And a lot of the small airlines need to look into or investigate to see if one is in your area and adapt your training program around it. And whether or not the FAA gives you credit for being able to shoot an approach, it really doesn't affect us too much. I can knock three or four hours off upgrade training in the Beech 99 by putting my pilot in the simulator and doing the maneuvers in it. Whether you're trying to teach a guy how to do a ADF approach, which we end up doing every six months, that's the only time he ever does one, running through 90 gallons of kerosene an hour or just sitting in the simulator, I mean, what's the effect? So I can knock off a little bit of flying time by use of the device whether I get credit for it or not. So it does have its positive aspects.

CAPT. LAWVER: Yes, that's a good point. We farm out time on our trainer to other operators, too, so that's a good way or a good approach when you're limited with money like all of us are.

DR. LAUBER: There's a hand back there.

MR. BLOOM: Bob Bloom with Imperial. One thing that we've kind of gone round and around about and we've pulled out of the loop are the aircraft manufacturers in developing simulators and cockpit procedure trainers. We've just ended up taking an order on two 360's and a whole bunch of stores. I'm wondering if we had it to do all over again if we brought pressure upon the manufacturer to work with people like the ATC people, like the Link people, to say along with the package that we're buying three, four and a half million dollar airplanes, we want, you know, a procedures trainer

and use that as leverage. That economic leverage makes a hell of a lot more sense when you talk about the initial outlay of sixteen or seventeen million dollars. And I think right now what we're faced with is now that we have the airplanes, now, what are we going to do about reducing the training costs and increasing the safety by using a procedure trainer. The next time your boss calls you into the office and says we're going to look at the ATR 42 and we're looking real close, you might want to keep that in mind and talk to those people and say, hey, what can you do for us for training in terms of simulation.

The other thing is in defense of Dick Collie's Phase I, Phase II, Phase III trainers, there's a lot of operators that can't afford the two or three phase and have to go with the one phase, and it sounds like it's a band-aid approach, but I think it's a foot in the door to get people to look at it and start to use it and then you can phase into those other trainers.

DR. LAUBER: Other comments or questions? You want to respond to that in any way?

CAPT. LAWVER: I think we still have two training device manufacturers here. I thought maybe they might want to say something. Do we have Dave Baumgart from Singer here?

DR. LAUBER: Would you like to comment?

MR. BAUMGART: Yes. Dave Baumgart from Link. Link has, as probably a lot of you know, traditionally developed simulators for probably the larger major carriers, and as such, we're probably on the high priced end compared to the type of devices that would be attractive to regional carriers. I think one of the things we need to keep in mind, and we discussed it yesterday in our group, are devices that would have value for training as opposed to devices which are suitable for the FAA for the checking requirements.

The FAA traditionally, and still today, is very high on the realistic side of the scale in order for them to take a device and give evaluations, type ratings, proficiency checks, and you may take a device which is a lot lower on the realistic side and get good training on it, but if you want to get checking credits, it may not be suitable. So that's just something to keep in mind when you're developing your requirements that you might want to give to manufacturers as far as to tell them, give them an idea of just what you're looking for, whether you want your training with it or whether you want your check with it.

CAPT. LAWVER: Is Dominic Marro here from AST? Did you have anything to say? Okay.

DR. LAUBER: Okay. Thank you very much.

The next working group, Working Group IV dealt with the issue of pilot education and safety awareness programs, and I know from their discussions, or part of their discussions that I sat in, at least yesterday, this group was very busy and very productive.

Marty Shearer from Air Midwest and Bill Reynard from NASA was the NASA co-chairman.